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DOCUMENT-IDENTIFIER: US 5497431 A

TITLE: Method of extracting
characteristic image data and color
data conversion device for
image processing apparatus

DATE-ISSUED: March 5, 1996

US-CL-CURRENT: 382/162, 358/520

APPL-NO: 08/ 294053

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PARENT-CASE:

This is a divisional of application Ser. No.
08/154,118 filed Nov. 18,
1993 now pending.

COUNTRY	FOREIGN-APPL-PRIORITY-DATA:
APPL-DATE	APPL-NO
JP	4-308963
18, 1992	November
JP	4-308964
18, 1992	November

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Detailed Description Text - DETX (33):

Further, a determination as to whether a region

is in a predetermined skin color range may be added to the above-described determination as to whether the region is a human face. Namely, one of the regions from among the regions extracted in the routine in FIG. 7 is selected as a region of notice.

Respective average values of the hue values, lightness values and saturation values are determined for the region of notice. A determination is made as to whether the respective determined average values of the hue values, lightness values and saturation values are included in a predetermined range representing a skin color. If the values are in the predetermined range representing a skin color, it is assumed that the region of notice is a human face. In this case, it suffices to determine whether the pixels are included in the predetermined range without determining the respective average values of the hue values, lightness values and saturation values of the region of notice.

Detailed Description Text - DETX (90):

Next, steps 206 through 210 will be described in detail. FIG. 17 illustrates step 206 in detail. In step 220, a region which is to be evaluated is cut out from the two-dimensional histogram for hue values and saturation values. In order to simplify the explanation in FIGS. 16A through 16C, a single frame is taken as the region to be evaluated. In step 222, a determination is made as to whether there exists a region to be evaluated. If

a region to be evaluated was not cut out in step 220, i.e., when evaluation of all of the regions has been completed, there are no regions to be evaluated, and consequently, the routine is completed. When there exist regions to be evaluated, in step 224, X and Y axes for preparing a histogram to be used for cutting out the mountains are determined. Namely, the region to be evaluated is pivoted around an axis parallel to the number of pixels axis, and positions at which there are the most peaks as seen from the side of the mountains of the histogram are determined, and of the determined positions, a position at which the mountains are the most sharp is determined. This position is used as a reference for determining the X and Y axes. In cases in which it is necessary to shorten the processing time, the axes at which the dispersion of the histogram is a maximum may be used as the X and Y axes, although accuracy will be slightly reduced by use of this method. In the example illustrated in FIG. 16A, when the four mountains numbered 1 through 4 are viewed from the side, the position at which there are the most peaks and at which the mountains are the most sharp is a position at which three mountains can be seen. Therefore, a direction orthogonal to the viewing direction is determined to be the X axis, and a direction orthogonal to the X axis is determined to be the Y axis.